THE

NEW CÆSAREAN SECTION,

WITH

REPORTS OF THREE SUCCESSFUL CASES.

BY

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OF NEW YORK.

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THE NEW CÆSAREAN SECTION.

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By William T. Lusk, M.D.,
New York.

A number of years ago I had occasion to make a special study of a large number of the reported cases of Cæsarean section, and was greatly impressed with the unfavorable conditions under which they, for the most part, had been performed. It then seemed to me certain that a plan would be devised by which the operation would benefit by the experience won in other departments of abdominal surgery, and that the time was not far distant when the opprobrium under which it rested would be removed.

The revolution that has since taken place we certainly owe Dr. Sänger. The question as to the originality of his suggestions is entirely irrelevant. While the great body of the profession was still engaged in the task of showing that the Cæsarean section had profited nothing by the recent advances in surgical science Sänger, in his exhaustive treatise entitled *The Cæsarean Section in Cases of Uterine Fibromata—Criticisms, Studies, and Propositions for the Improvement of the Cæsarean Section*, formulated a series of rules concerning the employment of the uterine suture which he invited obstetricians to put to the test of experience. In this work he gave most generous credit to Lundgren, Polin, Jenks, Brickell, and Harris. It is true that many of the suggestions originally made by Sänger have since been modified. The subperitoneal exsection of narrow strips of muscular tissue from the

borders of the uterine incision, upon which he laid great stress, has been found unnecessary in practice. But it remains a fact that Sänger's work, on its appearance, excited widespread interest in Germany. The challenge to test its principles was promptly accepted, and the triumphant results are a matter of common fame. The hateful mutilating operation of Porro has been restricted within narrow limits, and the croakings of the anti-Cæsarean school are no longer heard.

To belittle Sänger's achievements is to follow historic precedents. On the fly-leaf of one of the earliest printed Bibles some one wrote, more than two centuries ago, "If Melancthon had not piped, Luther had not sung." Or, to come down to what is within the memory of most of us, there were scholarly men twenty years ago who denied to Marion Sims all credit as the discoverer of the surgical cure of vesico-vaginal fistulæ, and insisted that in each one of the steps which led to success he had been anticipated by others.

For my own part, in presenting to this Society the histories of three successful cases of Cæsarean section performed within little more than a year in the Bellevue Hospital, it is my highest pleasure to acknowledge my obligations to Sänger, and to add my tribute to the glory he has justly won.

As my first case (March 22, 1887) has already been reported, I shall content myself with briefly recalling its more important features:

The patient had suffered in childhood from hip-disease, and, in consequence of the resulting ankylosis of the right sacro-iliac articulation, marked pelvic obliquity existed. There was extreme transverse narrowing, and, owing to the coincident projection of the promontory, the conjugate diameter was reduced to less than three inches. It was not impossible to have removed the child by craniotomy, but as the risks of extraction through the natural passages, where the transverse and antero-posterior diameters are both materially narrowed, are always great, and as the patient was otherwise healthy, and labor had just begun, I concluded, after consultation with Drs. Taylor and Garrigues, to resort to the Cæsarean section. The operation lasted an hour and fifteen

minutes. The highest temperature (102.8° F.) occurred on the fifth day, but dropped to 100.5° F. after a spontaneous evacuation of the bowels. On the eighteenth day a large abscess was found at the site of old sinuses upon the right hip. After this had been lanced the temperature fell, and continued without further disturbance at the normal point. From the second day the patient took an abundance of liquid food, with tea, toast, and eggs at the end of the week. Had it not been for the hip complication the period of puerperal convalescence would have compared favorably with that of an easy, natural labor. The mother has since had to support herself by hard labor, and the child, which weighed seven pounds at birth, is in a thriving condition.

Dr. Harris reports that this was the second successful Cæsarean operation in the city of New York, the first one having been performed in 1838.

In the two operations I have now the honor to report the indications were positive. As a matter of choice, I would gladly have avoided the Cæsarean operation. The fortunate issue in each case furnishes, therefore, the strongest evidence in favor of Sänger's method.

Case I.—Harriet S.,[1] aged thirty-eight, born in the United States, admitted to Bellevue Hospital October 6, 1887. The patient had been married seventeen years, and had previously given birth to four children, the youngest of which was two and a half years of age. Since the birth of the last child she has suffered from pains in her back, profuse menstruation, and leucorrhœal discharge. For the past eighteen months the pains have increased in severity, and the vaginal discharges have become profuse, watery, or sero-sanguinolent in character, and extremely offensive.

In the beginning of March she menstruated for the last time, and afterward had morning sickness and other signs of pregnancy. In June she came to the city and consulted Dr. Thomas, who found her suffering from advanced carcinoma. After I had read my paper on the "Prognosis of the Cæsarean Operation" before the Obstetrical Section of the International Medical Congress,

[1] Report of operation from notes furnished by Dr. R. W. Greene. Report of subsequent history from notes furnished by Dr. W. K. Tingley.

which met at Washington in September, 1887, I was consulted by Dr. Robb, of Amsterdam, her physician, concerning her case, and it was decided that she should be sent to Bellevue Hospital to be under my charge during the continuance of her pregnancy.

On admission the patient was found to be pale and cachectic. The enlargement of the abdomen corresponded to the eighth month of pregnancy. Fœtal movements could be distinctly felt, and the heart-sounds were well defined.

On examination the cervix, bladder-wall, and the upper portion of the vagina were found in a state of advanced cancerous degeneration. The os formed an indurated ring which permitted the passage of the index finger to the membranes and the child's head. As, however, the extent of the disease rendered it impossible to extract the child at the time of labor without the removal of an amount of tissue, and a degree of injury to adjacent organs that must certainly have proved fatal, it was decided to place the woman under observation, and perform Cæsarean section when gestation should reach its end.

With this object in view the patient was put upon tonics and supplied with an abundance of nutritious food. The vagina was douched twice daily with Labarraque's solution. As a consequence of these measures the fetidity of the discharges diminished and the general condition improved.

On the 25th of October the patient first complained of pains in the lumbar region and sacrum, which examination showed were due to uterine contractions. These continued at variable intervals until the 31st of October. From the 27th of October there was a nearly continuous discharge of watery fluid from the vagina.

On the 30th of October a cathartic was given, a bath administered, and the patient was restricted to a milk diet.

On the 31st of October, the day of the operation, the uterine contractions were attended with rather profuse bloody discharges.

The administration of ether was begun by Dr. Anderton at 2.58 P. M. by means of the Clover apparatus, and in four minutes anæsthesia was complete. Dr. Tingley then shaved the pubes, and washed the abdomen with bichloride solution in the usual manner.

The following particulars of the operation are from notes taken at the time by Dr. R. W. Greene: The abdominal incision was

made at 3.7, and extended from a point four inches above the navel to the symphysis. Three sutures were introduced through the abdominal walls above the navel in order to close that portion of the wound after lifting the uterus from the abdominal cavity. The uterus was turned out of the opening by its left border at 3.14. An elastic ligature was loosely applied around the lower uterine segment below the child's head at 3.15. Incision in uterine wall and through membranes was completed at 3.17. The arm presented at incision. The child was extracted at 3.18 and given to Dr. Braisted for special care. The membranes were adherent. The placenta was extracted at 3.22. The elastic ligature was relaxed and a carbolized stream was employed to wash out the uterus and vagina. At this time the patient's condition was good. Thirteen deep wire sutures were placed in the uterine walls, and the peritoneal borders were brought into careful contact by means of sixteen superficial silk sutures. For the latter purpose the Lembert stitch was employed. The closure of the abdominal wound was completed at 4.14 The total duration of the operation was one hour and seven minutes. Toward the close of the operation shock was well pronounced. For this eight hypodermics of whiskey were administered, and a nitrite of amyl inhalation was given before the patient was placed in bed. As the patient was markedly cyanosed and the respirations were shallow, oxygen was administered for twenty-five minutes. In an hour consciousness returned, and at 6.45 the patient was comfortable.

At no time subsequent to the operation did the patient suffer from nausea or vomiting. Rectal enemata were administered for twenty-four hours, but from the second day she partook freely of tea, bouillon, brandy, ice, milk, and carbonated drinks by mouth. The temperature-range for the first three days varied from 99° to $102\frac{1}{5}$° F., from which time it remained at nearly the normal point. There was some tympanites on the fifth day which was relieved by a rectal injection of a chamomile infusion. The bowels were moved on the eighth day with calomel (gr. iij) and a half ounce of Rochelle salts. The abdominal stitches were removed on the tenth day. Primary union had taken place throughout the entire length of the wound.

After the operation the carcinoma made rapid progress. The discharge became profuse, sanguinolent, and excessively offensive.

A good deal of mental disturbance, at times rising to mild mania, developed during convalescence.

On the twenty-third day the patient was able to sit up. On the 24th of December she returned home, but died eight days later from exhaustion due to the progress of the cancerous affection.

The child was born still, but was resuscitated with some difficulty by Dr. Braisted. It weighed six pounds at birth. For a few days it was fed on condensed milk, and then a wet-nurse was obtained. It has since thriven, and has never had a day's illness.

In reviewing this case, a word of warning may not be out of place. The cyanosis which was very marked after the operation, and which in the history is referred to shock, I believe in reality was due to repeated hypodermic injections of ergotine. These were administered at a time when the uterine circulation was arrested by the rubber ligature, and, as a consequence, when no effect upon the uterine muscle was possible. If, therefore, the cyanosis was the result of ergotism, the sequence illustrated the need of careful instructions as regards minute particulars to assistants prior to the operation.

Again, in reference to the mental derangement manifested by the patient, it is interesting to note that a similar disturbance was reported by Leopold as occurring in one of his patients, upon whom the Porro operation had been performed because of obstruction due to cancer of the inferior uterine segment. The symptoms developed on the fourteenth day, and on the thirty-third day the woman was removed to an insane asylum.

CASE II.[1]—Elizabeth L., aged twenty-six, born in England, admitted to Bellevue Hospital November 21, 1887. The patient was excessively pale and emaciated. Her pulse was 136, her respiration 36 and shallow, and the temperature by mouth was 102°. The mouth and tongue were brown, with sordes on the lips and gums. It was ascertained that labor began on the 15th instant, at 1 A. M.—*i. e.*, six and a half days previously. On the

[1] Report of operation by Dr. J. Clifton Edgar. Report of subsequent history by Dr. E. J. Lorenze.

17th the patient was greatly exhausted from pain and loss of sleep. A large dose of opium procured temporary relief, but the following day the pains returned, and continued up to the time of the patient's entrance into the hospital. On the 20th instant the membranes ruptured.

Examination showed the evidences of early rickets. The patient's height was fifty-seven inches. The forehead projected. The distance between the spine and crests of the ilia was each nine and a half inches. The external conjugate measured six inches. The diagonal conjugate was three and a quarter inches, and the estimated conjugata vera was two and a half inches. The distance between the ischia was two and a quarter inches. The pelvis belonged, therefore, to the flattened rachitic variety, with marked narrowing in the transverse diameters. In spite of the long continuance of labor the os was barely dilated to the size of a dollar.

In the woman's deplorable condition scanty hopes were entertained of saving her life by any obstetrical procedure. The extraction of the child by the natural passage after resorting to craniotomy and embryotomy could only have been accomplished through so narrow a pelvis after a long and difficult operation, which, in the exhausted state of the mother, would assuredly have proved fatal. At the same time it seemed hardly fair to burden the statistics of the Cæsarean section with a case apparently so hopeless. As, however, the heart of the child could be detected feebly beating, it was decided to resort to the ventral operation in the expectation of, at least, preserving the child's existence.

The patient was placed under ether at 2.8 P. M. Ether administered by Dr. Tingley. Pubes shaved; abdomen washed with soap and water, then with sol. hydrarg. bichlor. (1 : 3000), and finally with ether. Operation was begun at 2.15. The abdominal incision was made to extend from two inches above and to the left of the umbilicus to the pubes. At 2.18 the uterus was lifted from the abdominal cavity, and was held at right angles to the body by Dr. Lorenze. Protrusion of the intestines was prevented by a large flat sponge placed beneath the abdominal walls, and behind the uterus. A rubber ligature was placed loosely around the cervix, just below the child's head. The uterine incision, four and a half inches in length, was made in the median line midway between the cervix and fundus. The

occurrence of considerable hemorrhage made it necessary to tighten the rubber ligature. The child's knee presented at the opening. The child was extracted by the extremities, and at 2.20 was handed to Dr. Braisted for such care as might prove necessary. At 2.21 the placenta was removed. The entire decidua was found in a necrosed condition, and formed a grayish pulp, which had to be removed piecemeal by the fingers. The uterine cavity was then thoroughly washed out with Thiersch's solution, and the internal surface was dusted over with iodoform. This part of the operation caused a delay of twelve minutes. At 2.33 P. M. the deep silver sutures, seven in all, were introduced. At this stage the heart became weak, and a drachm of whiskey was injected into the right thigh. At 2.50 the silver sutures were adjusted, and the uterine wound was closed. Nine superficial sutures of fine silk were then employed to bring the peritoneal surfaces into apposition. At 3 P. M. the external surface of the uterus was carefully washed with Thiersch's solution and returned to the abdominal cavity. The cleansing of the abdominal cavity and the closure of abdominal walls was completed at 3.15. The total duration of the operation was one hour. At 5 P. M. the temp. was 100°, pulse 120, resp. 22, and the general condition of the patient was fair.

The next morning, November 22d, the temp. was 100.8°, pulse 122, resp. 20. In the evening the temp. rose to 102.2°, pulse 130, resp. 25.

November 23. Morning temperature 101.6° F., pulse 120, resp. 24. At 9 P. M. Temp. 102.5°, pulse 127, resp. 25.

24th, 9 A. M. temp. 102.4° F., pulse 128, resp. 22. At noon, on account of perceptible odor to the lochia, an intrauterine douche (sol. sub. cor. 1 : 3000) was given, and was followed by the introduction into the uterus of a suppository containing 100 grains of iodoform. At 9 P. M. temp. 102°, pulse 126, resp. 27.

25th at 4 A. M. temp. 103° F., pulse 130, resp. 27. Under hourly five-grain doses of antifebrin the temperature fell to 100.8°.

26th at 9 A. M. temp. 102.5° F., pulse 130, resp. 22. At this time I was absent for a day from the city. My house physician detecting, as he supposed, a fetid odor in the line of the abdominal wound, withdrew three of the stitches, which was followed by the discharge of a small quantity of pus. At 8 P. M. the temperature rose to 104.6° F., pulse 160, resp. 35. The following day

the abdominal wound parted so as to expose the anterior surface of the uterus. The peritoneal covering was healthy and glistening, and complete union of the uterine wound had taken place. The apposition of the peritoneal surface appeared to be perfect. Indeed, the sutures alone marked the line of the incision. In consequence of this exposure plastic exudation was subsequently thrown out, by means of which the uterus and the abdominal walls became agglutinated. The wound closed slowly by granulation. No general peritonitis followed. Indeed, there was no evidence that the abdominal cavity, as a whole, was exposed in consequence of this misadventure. There was, however, some local peritonitis, as was shown at a later period by the formation of a retrouterine abscess.

On the night of November 28th the weather changed suddenly and became very cold. The patient was unruly and insisted upon throwing the bed-coverings from her chest and shoulders. The next morning she had general bronchitis. Pneumonia followed, attacking first the left lung, and eventually invaded the entire right lung. Up to this time the patient's general condition had not appeared unfavorable. During the progress of the lung complication many alarming symptoms developed. At times the patient suffered from extreme dyspnœa, from cyanosis, and from œdema of the lungs. The temperature ranged from 102° to 104° F.; pulse from 130 to 160; respirations from 35 to 50; the tongue was dry, red, and glazed; a bedsore formed on the sacrum; an abscess developed in the left thigh; and excessive anæmia added to the critical condition.

On December 13th resolution began. The temperature fell to 99.8° F., pulse 138, resp. 45.

On December 14th thrombosis of the left femoral vein developed, associated with pain and slight swelling of the leg. The patient was delirious; the pulse was 150, and she suffered from frequent attacks of dyspnœa and cyanosis, due to excessive feebleness of the heart.

December 27th an effusion was detected situated behind the uterus, and extending down between the vagina and the rectum to the pelvic floor. December 29th a spontaneous discharge of pus took place through the vagina, which was followed by a complete disappearance of the swelling.

From this time the patient improved rapidly, and was dis-

charged from the hospital cured on the 14th of February. She has since returned frequently for observation, and enjoys excellent health. The uterus is small and adherent to the abdominal walls.

The infant lived only thirty-six hours, death occurring from trismus.

The happy result in this case was due to the devoted zeal of the nurses in charge and to Drs. Lorenze and Coakley, the hospital physicians. Upon Dr. Lorenze the chief charge devolved. Night after night he spent at the patient's bedside. The utmost fertility of resource was shown in attacking the untoward symptoms. Excessive temperatures were controlled by antifebrin, and when necessary by the rubber coil; the heart-action was sustained by brandy, digitalis, tincture of strophanthus, and nitro-glycerine; the pulmonary œdema was relieved by dry-cups and large flaxseed poultices; the dyspnœa by tincture of chloride of iron and chlorate of potash. Meat-solutions, milk, and stimulants were administered by the stomach. Nutritive rectal enemas were not retained.

A few days previous to the operation upon Lovell, I had occasion to perform craniotomy in the case of a woman who had likewise been a number of days in labor. The waters had escaped, the uterus was closely retracted upon its contents, the pelvic narrowing was of moderate extent, and the extraction of the child with the cranioclast was not an act of difficulty, but the woman died at the end of a week of septicæmia in spite of the employment of every usual antiseptic precaution. A hint as to the probable cause of the sepsis is furnished by the necrosed condition of the decidua which existed in Lovell's case; the death of the tissue evidently resulting from the long-continued pressure of the inner uterine surface upon the body of the child. An examination of the local condition showed quite clearly that any attempt to remove the dead tissue by intrauterine irrigation would have proved ineffective. It seems to me certain that Lovell's recovery was made possible by the careful detachment of the decidua with the fingers, and by the subsequent thorough disinfection of the

inner surface, which the uterine incision enabled me to carry out in an intelligent manner.

The removal of the abdominal sutures on the fifth day was an error. The absence at the time of any trace of peritoneal irritation indicated that the pus was of mural origin. The local peritonitis which ensued upon the exposure of the uterus was the cause of the pelvic abscess which, at a later period, complicated convalescence.

But none of these accidents seriously threatened the patient's life. The lung trouble which so nearly proved fatal was not septic, but the result of exposure. The sudden and extreme fall in the temperature during the night of the 28th was the responsible cause of the general bronchitis and the ensuing catarrhal pneumonia.

The vogue which recent triumphs have given to the Cæsarean section makes it important to bestow special attention upon the indications for the operation and the conditions of success. In this task I invite the aid of this Society, and beg that its members, either by the contribution of individual experiences or by criticism, may serve to guide those who wish to avoid failure, and to exercise restraint upon such as might be led by over-confidence needlessly to imperil valuable lives.

Now at the outset there are certain general principles with regard to which nearly all are in practical agreement.

In flattened pelves measuring $2\frac{1}{2}$ inches or less in the conjugate diameter, the risks of craniotomy equal if they do not exceed those of the Cæsarean section—the only exception to this rule occurring in cases in which a nearly normal transverse diameter coincides with extreme conjugate narrowing, an exception so rare as practically to be excluded from consideration. In justo-minor pelves with even 3 inches in the conjugate, mortality statistics show a death-rate, where embryotomy has been resorted to by expert operators, which the tyro would hardly equal were he to avail himself of the Cæsarean section.

With a pelvis measuring $3\frac{1}{2}$ inches in the conjugate, the expulsion of the child by the natural forces is to be expected.

In flattened pelves with a conjugate between 3 and 3½ inches, and in justo-minor pelves with a conjugate of at least 3⅓ inches, there is ample field for the exercise of all the resources of obstetric art. Within these limits labor induced at the thirty-fourth or thirty-fifth week furnishes a fair chance of saving the life of the child without imperilling seriously the life of the mother. In many cases, too, even when the woman has gone to full term, spontaneous expulsion of the child is possible, provided the child is of medium size, the head easily moulded, and the transverse pelvic diameter not disproportionately diminished; or, even if the natural forces are inadequate to the work of expelling the child, they in many instances suffice so far to engage the head at the superior strait that the further work of delivery can be safely accomplished by forceps. When no engagement of the head takes place, a skilful operator may in some cases save the child by a resort to version. If conservative measures fail, a timely resort to craniotomy is still practicable, and its performance is attended with slight maternal risk.

In these minor degrees of pelvic deformity, the Cæsarean section would, therefore, be indicated only when craniotomy had been found necessary in antecedent pregnancies, and the eager desire for a living child leads the mother to urge its performance.

But between 2½ and 3 inches in flattened pelves, or 3⅓ inches in justo-minor pelves, the question of choice between craniotomy and the Cæsarean section is debateable. The birth of a living child by the natural passages in pelves measuring a fraction less than 3 inches is not absolutely impossible. Still, the exceptions are so rare that they cannot be taken into account in determining rules of practice. At full term it is proper indeed to allow labor to proceed for a time, to test the adaptability of the head to the superior strait. But if, after a few hours, the head remains above the brim, the alternatives for effecting delivery are craniotomy or the Cæsarean section. In making an election between these methods, it is not right to ignore the superior value of the

mother's life. The recent improvements in Cæsarean statistics have, however, led to the inquiry whether it may not be possible in these higher degrees of pelvic contraction to do away altogether with embryotomy and its sickening concomitants. Before investigating this point carefully, I had believed that such would prove to be the case. Dohrn had reckoned that in private practice the death-rate from craniotomy was 27 per cent. In a letter received from Dr. Harris dated August 18, 1888, he informs me that in 65 Cæsarean operations performed in German cities there were 9 deaths, or a death-rate of a little less than 14 per cent. Moreover, 60 of the 65 children were born living. But such a comparison is an illustration of the misuse of statistics. Dohrn's calculation does not belong to the antiseptic period, and no operation has benefited more by antisepsis than that of craniotomy. Thus in Praeger's recent monograph[1] we learn that since the adoption of modern methods in hospital practice, Olshausen reports a death-rate from craniotomy of 5.7 per cent., Credé a death-rate of 8 per cent., and Leopold of 2.8 per cent. Leopold had 71 cases with 2 deaths. The latter were from eclampsia, and were hopeless from the outset. Gusserow reports from Berlin a death-rate of 14.3 per cent., or, excluding cases in which the death had nothing to do with the operation, the death percentage was reduced to 8.3.

In Dr. Harris's report concerning the Cæsarean section, to which reference has been made, the total number of cases performed in different countries had reached at the time of his writing 130 with 35 deaths, showing a mortality of 27 per cent. Wyder,[2] in advocating the claims of craniotomy, properly maintains the right to exclude from his statistics cases of rupture of the uterus, of deaths due to antecedent, improper forceps applications, and cases in which septic infection from outside sources had destroyed in advance every hope of a successful issue. The same principle applied to the Cæ-

[1] I. Praeger. Der Kaiserschnitt, etc., hesausgegeben von Dr. G. Leopold.

[2] Wyder. Perforation, Kunstliche Fruhgeburten und Secto Cæsarean in ihrer stillung Zur Therapie brim, Eugen Becker.

sarean section, as I have already endeavored to show,[1] would contribute to relieve greatly the sinister aspect of its death-rate, but even after making every allowance, it is necessary to admit sorrowfully that in equally competent hands craniotomy is at this moment a less perilous operation than the Cæsarean section. Even in cases of pelves measuring less than 3 inches, the recent showing for craniotomy has been unexpectedly satisfactory. Thus in Wyder's report of the Berlin clinic 25, and in Leopold's list 17 belonged in this category. Every one of the 42 patients recovered.

Fair treatment to those whose lives are entrusted to our care demands, therefore, that in these higher degrees of pelvic deformity the comparative risks of craniotomy and the Cæsarean section should be honestly represented to the patient and her friends, and to them should be left the final decision. But the maternal instinct is strong, and where the odds are not too great will usually outweigh prudential considerations.

In the irregular forms of pelvic contraction, and in obstructions due to carcinoma or to uterine and pelvic growths, it is useless to attempt to formulate rules. The conduct in each case is necessarily dependent upon individual peculiarities, and must be governed by the personal judgment of the physician in charge.

We have just remarked that in a certain proportion of cases of difficult labor it becomes the duty of the physician to state to his patient the comparative dangers of craniotomy and of the Cæsarean section, and that to the woman should be left the liberty of deciding whether she is willing to undergo the added peril of the latter operation for the sake of a living child. The physician, in acting as an adviser, assumes a solemn responsibility. Encouragement to select the more heroic measure must depend upon recorded results. Let us recur once more to Harris's report (Aug. 18, 1888):

Total number operated upon, 130; general average saved, 72 per cent.; German operations, 65; percentage of women saved, $86\frac{2}{13}$.

[1] The Prognosis of the Cæsarean Section. Trans. Ninth International Congress.

In Dresden there have been 20 cases, with 2 deaths; in Leipsic, 13 cases, with 1 death—or together 33 cases, with 3 deaths.[1]

Percentage of women saved, 91 per cent.

It would be interesting to know how many childless women, when told that their chances of recovery after Cæsarean section were as nine to one, would consent to the destruction of their unborn babe.

I append herewith a table of American operations, which again I owe to Dr. Harris.

No.	Date.	Operator.	Locality.	Woman.	Child.
1	Nov. 6, 1882	Dr. H. J. Garrigues,	New York,	Died.	Died.
2	Dec. 26, 1883	" Charles Jewett,	Brooklyn,	"	Living.
3	Nov. 12, 1884	" J. M. Drysdale,	Philadelphia,	"	Died.
4	Sept. 6, 1885	" J. R. Weist,	Richmond, Indiana,	"	Living.
5	Sept. 20, 1885	" W. H. Parish,	Philadelphia,	"	Died.
6	Dec. 16, 1886	" H. F. Biggar,	Cleveland, Ohio,	Living.	Living.
7	March 2, 1887	" W. T. Lusk,	New York,	"	"
8	May 1, 1887	" J T. Johnson,	Washington, D C.	Died.	"
9	May 29, 1887	" Justus Ohage,	St. Paul, Minn.	"	"
10	Oct. 23, 1887	" J G. Jay,	Baltimore,	Living.	"
11	Oct. 31, 1887	" W. T. Lusk,	New York,	"	"
12	Nov. 21, 1887	" W. T. Lusk,	New York,	"	"
13	Dec. 11, 1887	" L Ernest Neale,	Baltimore,	Died.	"
14	Jan. 13, 1888	" R B. Norment,	Baltimore,	"	"
15	Feb. 24, 1888	" H. J. Garrigues,	New York,	Living.	"
16	March 1, 1888	" W. M. Polk,	New York,	Died.	"
17	March 6, 1888	" W. W. Jaggard,	Chicago,	Living.	"
18	March 19, 1888	" H. H. Ninke,	St. Charles, Missouri,	Died.	"
19	April 17, 1888	" H. A. Kelly,	Philadelphia.	Living.	"
20	May 30, 1888	" H. A. Kelly,	Philadelphia.	"	"
21	Feb. 21, 1888	" J. H. Etheridge.	Chicago,	Died.	?

To this list should be added two recent fatal cases, one occurring in the practice of Prof. Polk, of New York, and one in that of Dr. Willard, of Seattle, Oregon. Thus, there have been in this country 23 cases with 14 deaths. Of recoveries there have been not quite 40 per cent.

This is not a pleasant record. It is calculated to paralyze the intending operator, and to extinguish hope in the patient. Undoubtedly many of the operations were performed under very unfavorable conditions. In spite of all that Harris has

[1] Leopold. Der Kaiserschnitt, etc., p. 148. There is no reason for supposing that Leopold's two fatal cases could have been saved had craniotomy been employed.

written, tardy diagnosis, and the late resort to measures of surgical relief are still errors that heavily weight American Cæsarean statistics. The requirements for better results are the recognition of the obstruction to the parturient canal early in the labor, or, better still, before the end of pregnancy, proper preparation of the patient, adequate assistance during the operation, complete antisepsis, and skilled nursing. When these requirements are not fulfilled the Cæsarean section is not a scientific measure, but a gambling with life.

If every physician would make himself acquainted with the very moderate requirements for the recognition of pelvic deformities, and would regard it as a professional duty in first pregnancies to investigate the pelvis and its contents before the advent of labor, an important source of evil could be avoided. His patient could then be prepared, in case the Cæsarean section was indicated, by full baths, by disinfecting vaginal douches, by laxatives, by diet, and by tonics for the serious shock to which her system would have to be subjected. When labor sets in he would await the canalization of the cervix, which is usually sufficiently advanced at the end of from four to ten hours. If the labor comes on at night, it is best to defer the operation until the coming of daylight. Needless vaginal examination should be avoided.

The necessary preparations should meantime be made, and selected assistants should have explained to them their respective duties. There should be one assistant to take charge of the anæsthesia, one to hold the uterus after it has been turned out of the abdominal cavity, one for the instruments, one to take charge of the newborn child, and, if still, to aid in its resuscitation, and a trained nurse to wash and keep account of the sponges.

Few instruments are required. The entire armamentarium should consist of one or two scalpels, a pair of blunt-pointed scissors, a half-dozen compression forceps, a needle-holder, curved needles, an irrigator, a powder-blower, aseptic towels, and vessels containing an abundance of warm carbolized water.

The sponges should be aseptically cleaned,[1] and carefully counted. A piece of rubber tubing will be needed to place around the lower uterine segment to control the hemorrhage when the uterus is incised. For ligatures, silver wire, silk, and catgut have each their advocates. In my first case I used silk alone, and in the other silver (No. 29) for the deep, and fine silk for the symperitoneal sutures. Leopold prefers chrome catgut,[2] a large size for the muscular walls, and a fine one for a continuous suture to approximate the peritoneal borders. At the time of operation instruments, sponges, wire, and silk should be placed in a two per cent. solution of carbolic acid.

The operator and his immediate assistants should thoroughly wash their hands and forearms with soap and water. The nails should be cleaned with a nail-brush and nail-cleaner, and finally, once more, the hands and arms should be bathed for several minutes in 1 : 1000 solution of corrosive sublimate. During the operation clean white aprons should be worn.

Preliminary to the operation, the patient's bowels and bladder should be emptied, and the vagina should be douched with a five per cent. solution of carbolic acid. During the induction of anæsthesia, pains should be taken to make sure that the auscultatory signs of fœtal life are present. After the patient has been placed upon the table, the pubes should be shaved, and the abdomen should be cleansed in the usual manner with soap-suds, corrosive sublimate solution, and ether.

The abdominal incision should be made to extend from a point above the pubes to one three or four inches above the

[1] To render sponges aseptic they should first be boiled in a weak solution of soda, and washed out in boiled water. They should then be soaked for two hours in a solution of permanganate of potash (1 : 4000), and, after repeated washings in a 4 per cent. solution of hyposulphite of soda, to which 3 to 4 per cent. of muriatic acid has been added, should be preserved in a 5 per cent. solution of carbolic acid. Zweifel, Arch. f. Gyn., vol. xxxi. p. 204.

[2] Catgut should be immersed forty-eight hours in a 10 per cent. solution of carbolic acid, then placed for five hours in a ½ per cent. solution of chromic acid, and afterward should be preserved in absolute alcohol. Mikulicz.

navel. At this stage it is convenient to pass a half-dozen long wire sutures through the upper portion of the incision. For the moment the ends should be left free. The child can be removed from the uterus *in situ*, but it is a great convenience first to turn the uterus out of the abdominal cavity. This is accomplished without much difficulty, by first tilting the uterus so as to cause its left border to present at the incision, and then pressing the abdominal walls backward over the uterus. As it emerges the assistant should envelop it in a warm carbolized towel, and hold it at nearly right angles to the abdomen. The operator now tightens the sutures in the abdominal incision to retain the intestines, and places a flat sponge beneath the abdominal walls behind the uterus to prevent the entrance of fluids into the peritoneal cavity. The rubber tubing should be placed loosely around the lower uterine segment beneath the presenting part. I prefer, instead of beginning at the fundus, by a series of rapid strokes first to make a small incision down to the membranes in the median line just above the lower segment, and then to extend the incision rapidly upward with a pair of blunt-pointed scissors. If the placenta is encountered, it should be detached with the fingers and pushed to one side. The uterine incision should be between four and five inches in length. If the membranes are intact, they should be ruptured, and the child should be rapidly extracted. The rubber ligature should be tightened, and the remainder of the operation should be rendered bloodless. As the uterus retracts the assistant sees that the abdominal incision is kept in close contact with the uterine surface. With a little care no blood or fluid need obtain entrance into the abdomen during the entire operation.

In many cases the membranes peel off intact with slight traction, and come away with the placenta. Adherent portions of decidua should be carefully detached with the fingers. I have found it easy to wash out the uterine cavity with a disinfectant fluid, by placing the irrigator nozzle in the wound and pressing the cut surfaces together while loosening for the moment the elastic ligature. The pressure of the hands pre-

vents hemorrhage, and the stream passes out unimpeded through the vagina. When this has been done, the uterine cavity should be sponged nearly dry, and the inner surface powdered over with iodoform by means of an insufflator.

The uterine incision should be closed by two sets of sutures, a stronger one of wire, silk, or catgut for the muscular structures, and a fine one of silk or catgut to approximate the peritoneal borders. The muscular sutures should be introduced one-half inch from the borders of the incision, and passed obliquely downward to, but not including, the decidua. Of these, eight to twelve are usually necessary. For the peritoneum I have used an interrupted suture of fine silk, and have employed with great satisfaction the Lembert stitch to secure close union. Leopold advocates catgut for both deep and superficial sutures, on the ground that they produce less subsequent irritation; but care must be taken to secure catgut of good quality, and to tie the deep sutures with three knots.

After the suturing is completed, a hypodermic injection of the fluid extract of ergot should be made into the skin of the outer surface of the thigh. The elastic ligature should then be loosened, and manual compression maintained until firm contractions have been secured. After replacing the uterus, the abdominal wound should be closed without haste, and with punctilious care. A full antiseptic dressing should be applied. The patient, finally, should be placed in bed with hot bottles around her, and, in case of failing heart-action, the usual restoratives should be applied.

As vomiting after the Cæsarean section is rare, the administration of liquid food by the stomach is possible almost from the first. Tympanites is sometimes distressing, but can often be relieved by injections of soap-suds in chamomile infusion, while in severer cases a calomel laxative may be administered (gr. ijss every five hours until action is produced). The abdominal stitches should be removed from the twelfth to the fourteenth day. In favorable cases the patient may sit up by the middle of the third week.

For the first few days I keep a trained nurse and a young

physician in constant attendance, and my own visits are at frequent intervals. Every change is constantly noted. Promptness in meeting emergencies counts for much in securing the favorable result.

In conclusion, it may be proper to state that if the patient's condition at the outset was fairly good, and the operation was performed with every attention to detail, such as a well-equipped hospital renders possible, and the after-management was intelligently conducted, the prognosis is hardly doubtful. Recovery will almost certainly follow, and a new triumph will add to the fame of Sänger.

But if the patient has been operated upon in her own home, after a lingering labor, without needed assistance, perhaps by the light of a kerosene lamp, and with preparations of a makeshift character, and after the work is ended she is left to the care of ignorant, prejudiced persons, it may be proper to call the operation by the name of Sänger, but recovery, if it occurs, must be regarded as partaking of the nature of a miracle.